

## IN BRIEF

- During the period of recovery, postoperative anxiety and pain experienced by young children who had extractions under general anaesthesia with preoperative analgesic suppositories were not affected by perioperative injection techniques of local anaesthesia.
- Perioperative intraligamental injection of local anaesthetic appears beneficial as it results in lower postoperative pain scores on the first night postoperatively.
- The use of preoperative analgesic suppository with perioperative local anaesthetic remains beneficial as postoperative pain control for extractions under general anaesthesia.


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## Perioperative LA in young paediatric patients

Perioperative local anaesthetic in young paediatric patients undergoing extractions under outpatient 'short-case' general anaesthesia. A double-blind randomised controlled trial **K. J. Leong,<sup>1</sup> G. J. Roberts<sup>2</sup> and P. F. Ashley<sup>3</sup>**

### ABSTRACT

#### Objective

To investigate if postoperative pain/discomfort and anxiety experienced by young children who had extractions under general anaesthesia (GA) were affected by perioperative injection techniques of local anaesthetic (LA).

#### Design

A single-centre, double-blind, randomised controlled trial.

#### Setting

Conducted in 2002/2003 at the Unit of Paediatric Dentistry, Eastman Dental Hospital, London.

#### Methods

Children, aged 2-6 years scheduled for extractions under GA, were randomly assigned to receive either no LA (NLA), infiltration injection (IFL) or intraligamental injection (ITR) perioperatively. All children received analgesic suppositories after induction.

#### Outcome measures

Anxiety was scored using the Venham Picture Scale. Postoperative pain was scored using the Simplified Toddler-Preschooler Postoperative Pain Scale and supplemented with the Modified Pain/Discomfort Scale.

#### Results

Eighteen children received NLA, 17 received IFL and 19 received ITR. Postoperative pain/discomfort and anxiety scores were not significantly different during the period of recovery. On the first night, the intraligamental group had significantly lower pain scores ( $p = 0.012$ ).

#### Conclusion

Postoperative pain/discomfort and anxiety during the period of recovery experienced by young children who had extractions under GA appear not to be affected by perioperative injection techniques of LA. Upon discharge, intraligamental injection appears beneficial, as it is probably well tolerated by causing less soft tissue numbness initially and thus, reduces perceived pain/discomfort.

### EDITOR'S SUMMARY

Few interventions in dentistry, or medicine, are without alternatives and, equally, few are without controversy. Indeed one of the purposes of publication is the opportunity to describe methods and air results for the information and comment of others.

The use of local anaesthesia in conjunction with tooth extraction for children completed under general anaesthetic has two possible benefits; to reduce post-operative bleeding by virtue of the haemostatic agents in the local anaesthetic, and to reduce pain. While there is little debate about the effectiveness of the first outcome, the second is more contentious since some argue that children find the sensation of numbness in their mouths of further distress to the trauma of the extractions and of the general anaesthesia.

In this study the authors aimed to ascertain if the type of administration of the local anaesthesia affected the pain perception outcome by comparing infiltration with intraligamental delivery. While they conclude that the intraligamental method was better tolerated, the author of the Commentary draws a different inference, once again illustrating the diversity of views on this subject.

In addition to the present results and acknowledging the personal operative preferences of different clinicians, there are two possible further lessons to take from this work. One is contained in the authors' answer to the question as to their favoured next steps. They point out that we do not currently have appropriate scales to measure numbness or discomfort in children and this clearly needs further investigation if we are to effectively devise the most beneficial treatments, not only in dentistry, for these young patients. Secondly, literally and metaphorically, it is a painful reminder that prevention is so far and away preferable to treatment that our efforts in this direction must continue to guide our work.

The full paper can be accessed from the *BDJ* website ([www.bdj.co.uk](http://www.bdj.co.uk)), under 'Research' in the table of contents for Volume 203 issue 6.

Stephen Hancocks OBE,  
Editor-in-Chief

DOI: 10.1038/bdj.2007.851

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**FULL PAPER DETAILS**

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Online article number E11  
 Refereed Paper – accepted 24 January 2007  
 DOI: 10.1038/bdj.2007.724  
 ©British Dental Journal 2007; 203: E11

**AUTHOR QUESTIONS AND ANSWERS****1. Why did you undertake this research?**

Local anaesthetic administered by way of infiltration is routinely used perioperatively for children undergoing dental extractions under general anaesthesia. Anecdotal observations appeared to suggest that numbness following the use of perioperative local anaesthetic could be more uncomfortable for young children than the sensation of pain that arises from the overall procedure. Unfortunately, little is known about whether these young children were feeling uncomfortable because of the sensation of numbness or due to pain that arises from perioperative procedures. We wanted to investigate if abandoning the use of local anaesthetic or using different perioperative local anaesthetic techniques could improve postoperative morbidity in terms of pain and discomfort.

**2. What would you like to do next in this area to follow on from this work?**

It would be interesting to explore further the potential of perioperative administration of local anaesthetic using the intraligamental technique as a method to reduce postoperative discomfort, particularly in young children. In our opinion, the number of teeth and the number of quadrants involved could be standardised to facilitate statistical analysis. One of the greatest challenges in performing such studies in young children is the selection of appropriate scales to measure outcome variables, especially scales that are able to measure 'numbness' or 'discomfort' following the use of perioperative local anaesthetic. Further studies are required to formulate and to validate new scales for such purposes.

**COMMENT**

This paper continues the debate on whether the use of local anaesthetic (LA) is beneficial to children who would otherwise have extractions carried out under general anaesthesia (GA). As previous studies showed that LA by infiltration (IFL) caused more post-operative stress due to a numb sensation, the authors tested the usefulness of LA by intra-ligamental injection (ITR). The number of recruited subjects was small but the authors agreed that it was sufficient to carry out a statistical test. It is interesting to see that post-operative pain assessment was followed up to the third day using telephone interviews.

The results showed that generally, there was no major benefit in terms of pain/discomfort or anxiety for a child to have supplemental LA during GA. In fact, the group who had LA by infiltration appeared to experience more pain on the first night. Statistically, the increase in pain score in the infiltration group was significantly higher than that in the intra-ligamental injection group. However, the group with no LA (NLA) also had low pain scores on the first night and the authors did not find any significant difference between the ITR and NLA groups.

It is therefore misleading for the authors to conclude that intra-ligamental injection is beneficial in lowering pain score on the first night post-operatively. In view of this, clinicians who carry out GA extractions on young children need not give LA. If they do for reasons of achieving better haemostasis or reducing surgical stimulation, intra-ligamental injection is preferred.

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